

What about Alternative Methods? Who and What about Socialization? Acad. Performance? Growth of the Academic? Why?

HOME SCHOOLING

on the Threshold



Movement? Performance? Growth of the Academic? Why?

A SURVEY OF
RESEARCH
AT THE DAWN
OF THE NEW
MILLENNIUM

Movement? Performance? Growth of the Academic? Why?

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What about Socialization? Acad. Performance? Growth of the Academic? Why?

Introduction

Education has been a crucial concern of parents and society since the genesis of culture. Educational issues are passionately debated in America today, at the dawn of the new millennium. And at this unique point in history, it has become clear that home schooling will play an ever-increasing role in the fracas that surrounds educational debates, reforms, and choices. What some observers thought would be a passing fad—home schooling—has become a visible movement motivated by capable leaders and a robust mix of parents and children.¹

The home-school movement will likely exert influence in society that is disproportionate to its size. Why? A key reason is its successes. Research has made it apparent that the home educated are doing well in terms of academic achievement, socialization, and success in adulthood.² Multiple references will be provided later to support this statement and other conclusions made in this publication. In addition, these families are becoming a respected part of society that is politically active, savvy, and successful.³

Although home-school parents and their children are bucking the conventional practice of relying on typical educational institutions beginning at the age of 5 or 6 in groups of same-age peers with state-certified and largely state-trained teachers, the growing cadre of home-school parents are practicing what cultures have believed and practiced for centuries. That is, parents, families, and closely-tied social groups should be the ones to transmit culture, beliefs, and literacy (in reading and writing) with the utmost care and dedication.⁴

Both noble and ignoble persons in many countries value education. They recognize that the education (including indoctrination) of children—a country's future citizens—is the key to the path a nation will follow.⁵ Adolph Hitler, V. I.

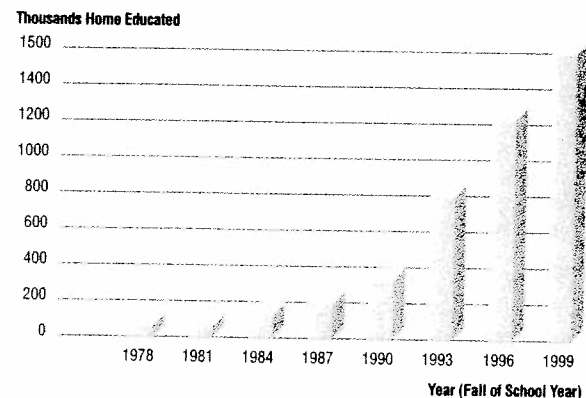
Lenin, and Benito Mussolini are known for their plans to use schools to advance their own base purposes. Martin Luther wanted to use schools to impress on children the word and mind of God. In America, educators such as John Dewey, Horace Mann, and Jane Addams, business leaders, and many other social leaders knew that if they were

to be able to enculturate, indoctrinate, and mold the thinking and behavior of the next generation then they would have to design and control the curriculum of the schools.⁶

Today, social thinkers, social tinkers, and some parents still recognize the battle that exists for children's hearts and minds that is played out in their education. Some call for institutional schools to exert even more influence in and control over the lives of children.⁷ Contrariwise, others are sounding a clarion call that urges parents to be in charge, knowledgeably and intimately, of their offspring's education.

As one response, people of many cultural heritages, skin colors, and religious worldviews are moving quickly to engage their children in home-based education—for a broad array of reasons. By the end of the first decade of the 21st century, there may be well over two million children being home schooled in the United States alone (see Figure 1).⁸ Meanwhile, this educational practice is also resurgent in many other countries such as Mexico, South Africa, the United Kingdom, Canada, and Germany.⁹

FIGURE 1
GRADES K-12 CHILDREN HOME EDUCATED IN THE U.S.
(estimated)



This booklet is designed to review important and representative research on home schooling to date. The review covers the topics that are generally the most important to parents, educators, policy makers, and society at large. For those who desire to conduct an in-depth examination of the methodology and quality of the cited studies, full citations are provided.



Why Are People So Curious About Home Schooling?

Many cultures throughout history have practiced home- and family-based education, and some still do. Even people during the past few centuries of western civilization have practiced forms of education that are clearly parent-controlled or parent-led. Dr. Edward and Elaine Gordon make it clear, in *Centuries of Tutoring: A History of Alternative Education in America and Western Europe*, that education centered in and around the home and family has played a key role in society throughout history.¹⁰ The Gordons' brief comments dedicated to home schooling at the end of the 20th century puts into perspective that today's home education has a rich heritage and is one more significant expression of the importance of the historical concept and practice of home- and family-based learning throughout western civilization.

An examination of education in America also indicates that home education, in one form or another, was prevalent until the late 19th century. "In general, then, seventeenth and eighteenth century parents—particularly the father—bore the primary responsibility for teaching their children... Christian doctrine, vocational skills, and how to read and, to a lesser



extent, write and figure..."¹¹ Renowned historian Dr. David Tyack pointed out that during the 19th century "...the school was a voluntary and incidental institution: attendance varied enormously from day to day and season to season..."¹² Further, the parents and community controlled

total education of a child since he "...acquired his values and skills from his family and from neighbors of all ages and conditions."¹³ The growth in popularity of compulsory school attendance at the end of the 19th and the early 20th centuries, along with the idea that trained professionals could best teach children, decidedly moved the education of children into the hands of school personnel as the 20th century began.

Home education has always existed in spite of the prevalence of classroom school attendance since 1900. Although it is difficult to know the numbers of students taught primarily at home by their parents during the period of 1875 to 1975, the practice continued to a limited extent. For example, the situation of great distances between homes and schools in Alaska led to the creation in 1940 of the government-sponsored Centralized Correspondence Study (CCS) which is still essentially home schooling. Those involved in home education across the country today, however, include students far removed from any government-operated program.

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Stimuli for the Renewal

The late 1970s and the 1980s witnessed a sudden growth in the occurrence of home education.¹⁴ A number of factors might account for this phenomenon. One study of early published material on home education noted the frequent mention of names such as John Holt, Ivan Illich, and Jonathan Kozol, and inferred a direct link between the public issues of alternative schools, community control, and deschooling that were raised in the 1960s and the emergence of modern home education;¹⁵ "...the early jargon of home education made use of the arguments of the prominent educational reformers" of the 1960s and early 1970s.¹⁶ In a similar vein, Dr. Michael Shepherd surveyed the social activism, the public's declining regard for public schools, and the concepts of deschooling and alternative schooling that were prevalent in the 1960s and early 1970s. Shepherd concluded, "Several people who promoted alternative schools in the 1970s would come to advocate home schooling..."¹⁷ Dr. Joseph Kirschner's historical account, likewise, links the work of John Holt and others to the beginnings of modern home education.¹⁸

Since the 1970s, many new home-school "...advocates found and espoused Biblical and religious rationales. ... Home schools became grounds of and for ideological, conservative, religious expressions of educational matters, which symbolized the conservative right's push towards self-determinism."¹⁹

For decades, American parents have seen their children's lives slip away from their influence. Dr. Kirschner surveyed the shifting roles of family and school as educator in order to make sense of the surge in home education. He concluded that

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"...we find many Americans turning to 'family values' and scriptural religion in a search for stability and something to believe in. ...In the home-school movement one finds a hint of optimism in this age of cynicism not seen in quite a while."²⁰ Even the secular media came to the realization by the 1990s that they had to address the breakdown of the traditional, biblical family that had occurred during the preceding three decades.²¹

Dr. Maralee Mayberry, a sociologist, also perceives home education as a way for parents to regain control of their children's and their own lives, a way to make the impact they want on the next generation.²² This choice is being made by a wide variety of people. For example, despite the unfounded claim of some critics (e.g., a representative of the National Education Association) that many parents choose home schooling due to their racism,²³ it appears that an increasing proportion of Blacks, Hispanics, and other minorities are choosing home education.²⁴

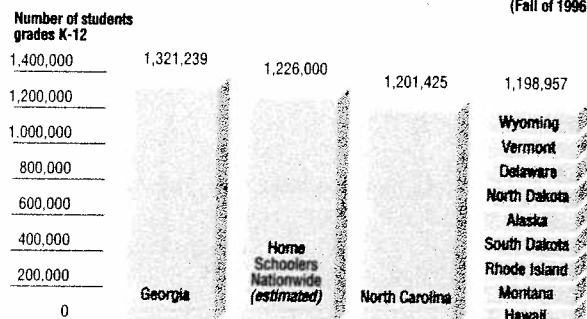
This educational life that integrates parents and children is, however, contrary to the modern trend toward the institutionalization and professionalization of education. In 1980, close to 100 percent of children and youth of ages 6 to 18 were in institutional schools; about 88% of these were in state-operated (public) schools.²⁵ Over the course of just two decades, America has changed to the point where 1.2 to 1.6 million school-aged children and youth are home schooled.²⁶ In the fall of 1996, it is estimated that there were more home-school students than public-school students in nine states combined (see Figure 2).²⁷ Further, the home-school population is now about 24% of the size of the private-school student population.²⁸ This represents a very notable change in the educational choices of parents and students. If this trend were to continue at a modest 7% annual growth rate,²⁹ about 3 million students would be home educated during the fall of 2010.

A quickly growing number of government-run school systems are so alarmed about the growth of home schooling that they are instituting new tax-funded home-school programs to get these families into public schools. Some government-school personnel claim that they are starting these programs simply to help students. Much debate surrounds these programs.

The media, public and private educators, policy makers, politicians, and parents are fascinated with home schooling.



FIGURE 2
HOME SCHOOL STUDENTS NATIONWIDE COMPARED
TO SELECTED STATE PUBLIC SCHOOL POPULATIONS
(Fall of 1996)



It contradicts the norm; ordinary parents are taking the mystery out of professional teaching; it seems to be working. In addition, home-based education appears to embody many things that parents and families have desired throughout the ages, and perhaps especially at this point in time in a highly technological age: high levels of parental involvement in children's lives, community-oriented education, success in academics, and an emphasis on the transmission of culture and values by family, friends, and religious communities rather than by society at large or a select group of educators.

Who Is Home Schooling and Why?

The stereotypes are crumbling regarding who home schools. In the mid-1980s, Dr. Jane Van Galen categorized home-school parents as either pedagogues or ideologues.³⁰ Pedagogues were those who said that whatever public schools could do in terms of teaching and learning, they could do better. Ideologues were those parents driven more by a desire to pass on to their children a particular set of values, worldview, and religious beliefs. They often expressed the idea that God had called them to home educate their little ones. As Dr. Van Galen pointed out, however, there was not always a clear cleavage between these two groups. That is, any given set of parents might have a mixture of reasons in mind for home educating their children.

Multiple studies make clear what the main reasons for home schooling. The most frequently cited reason has to do with wanting to teach and transmit a particular set of values and beliefs and a worldview to children. Parents also frequently talk about five other important reasons for home schooling. First, they want their children to accomplish more academically than they would in schools. Related to this, they want to individualize the curriculum and learning environment to meet the unique strengths and needs of each child. Third, they want to enhance family relationships between children and parents and amongst siblings. Fourth, these parents want to provide guided and reasoned social interactions with youthful peers and adults rather than taking their chances with what will occur in an institution. Finally, an increasing number of parents are concerned about the safety of their children (e.g., regarding physical violence, drugs and alcohol, psychological abuse, and sexuality).³¹ Research also shows that many parents' and youths' reasons for home schooling change or mature over time.³²



GENERALIZATIONS

After two strong decades of a renaissance of home- and family-based education, the variety of families involved has greatly increased. Generalization about them leads to a paradox. An attempt to homogenize home-school families in order to understand them may lead a person further from fully understanding the richness of the many dimensions that are so much a part of the home-schooling community. It is important, therefore, to first mention a few other things that are known about home schooling. Bolick's observation in 1987 is perhaps even more salient today:

*"Many home schoolers are rigidly traditional and scrupulously law-abiding, while others are long-time practitioners of civil disobedience. Some are fervently religious and have removed their children from mainstream schools because they are too secular, while others are nonbelievers who consider the public schools too religious."*³³

Many researchers and this author's years of experience corroborate this wide and increasing diversity within home schooling.³⁴ With the preceding thoughts and nuances in mind, a synthesis of many studies produces the following principal characteristics of home-education families:



1. Both parents are actively involved in home-based education with the mother/homemaker as the main academic teacher most of the time; fathers do about 10% of the formal teaching of the children. Research suggests that 25,000 or more single-parent families were home schooling in the fall of 1998 and the number is increasing.³⁵

2. The learning program is flexible and highly individualized, involving both homemade and purchased curriculum materials. Some families purchase complete

curriculum packages for their children while others approach home schooling with a small degree of pre-planned structure; this is often called "lifestyle of learning" or "unschooling."

3. Children are formally "schooled" three to four hours per day and often spend extra time in individual learning endeavors. The amount of formal or structured learning time is directly related to the student's age.

4. The median amount that families spend per child per year for home education (e.g., textbooks, tuition for part-time classes, field trips, and special resources) is about \$450 (with a mean of about \$575).

5. Home-educated students have relatively little interaction with public schools or their services. A minority participate in interscholastic activities like sports and band in the public schools or occasionally take an academic course in local schools.

6. Children study a wide range of conventional subjects with an emphasis on reading, writing, math, and science. Many students take advantage of home schooling's flexibility

to participate in special studies and events such as volunteer community work, political internships, travel, missionary excursions, animal husbandry, and national competitions.

7. Children are taught at home for at least 4 to 5 years, and most parents intend to home educate them through the high school years.

8. Home education is chosen for various reasons, including concerns for the cognitive development (e.g., to accomplish more academically, to individualize learning, and to teach a particular worldview), the affective development (e.g., to learn selected philosophical, religious, or cultural values and traditions, to be in a preferred moral environment, to avoid unnecessary peer pressure, to have greater parent-child contact, and to enhance self-concept), and safety (e.g., regarding physical violence, drugs, and sexuality).

9. On average, there are 3.0 to 3.3 children in the family; male and female students are equally represented; at least 95% of the families are headed by a married couple.

10. Formal instruction typically begins at 5 to 6 years of age. The individualized nature of home schooling allows parents to begin formal instruction at whatever point their child is ready and to whatever extent they think is most suitable for the child.

11. About 70% of the students are 7 to 13 years old. Research suggests that the age distribution is beginning to approximate that of the general population.

12. The "typical" parent has attended or graduated from college. About half of home educators have earned a bachelor's degree or higher in terms of formal education; there are, however, significant numbers of home-school parents who themselves simply have high school educations.

13. The total annual household income is under \$25,000 for about 18% of the families, \$25,000 to \$49,000 for about 44% of the families, \$50,000 to \$74,000 for about 25% of the families, and \$75,000 and above for about 13% of the families.

14. Over 75% regularly attend religious services; the large majority are of the Christian faith and place a strong emphasis

on orthodox and conservative biblical doctrine. Significant and increasing numbers of agnostics, atheists, Buddhists, Jews, Mormons, Muslims, and New Agers also home school their children.

15. It appears that currently over 90% are White/not-Hispanic in terms of racial/ethnic background. A rapidly increasing number of minorities are engaging in home-based education.³⁶

How do some of the preceding "average" characteristics compare to the nation's population at large? The average number of children in married-couple families in the United States was 1.8 in 1990. Home-school families, therefore, have significantly more (about 70%) children than the average. In 1990, only 73% of children under the age of 18 in the United States lived with a married couple while it appears at least 95% of home-school children do so.³⁷

About half of home-school parents have completed a 4-year college degree or higher. In contrast, only about 24% of the general public does so.³⁸ The population of home educators has a somewhat higher level of educational attainment than that of the general public.

The median annual family income of home-school families appeared to be between \$38,000 and \$43,000 in 1996. The median income for all married-couple families in the United States in 1995 was \$47,062.³⁹ Home-education families apparently have median incomes that are lower than those of all married-couple families across America, but are higher than those of married-couple families with the wife not in the paid labor force.⁴⁰

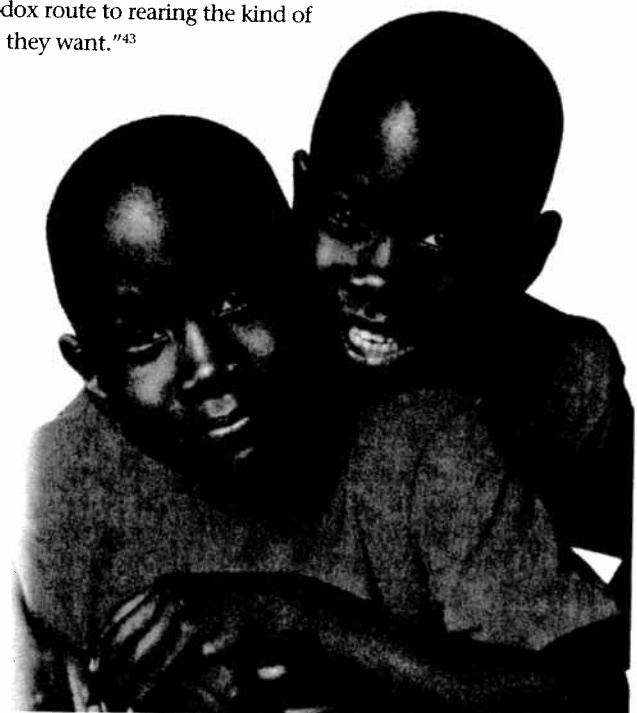
While home-school parents spend, out of pocket, a median of about \$450 (mean of about \$575) per child per year on education, state schools (i.e., public schools) spent an average of \$5,325 per student (pre-kindergarten through the 12th grade) during school year 1993-94.⁴¹ This cost in state schools did not include construction, equipment, and debt financing. The highest per-pupil expenditure was \$9,075 in New Jersey; the lowest was \$3,206 in Utah. It is clear that the direct, out-of-pocket costs of public (government-run) schooling in the United States are about 10 times as much as what the home-education families spend on educational materials and services.

In summary, a wide variety of individuals are involved

in home schooling, just as the United States is comprised of a pluralistic population. Home-based education includes (but is not limited to) atheists, Christians, and Mormons; conservatives, libertarians, and liberals; families with 5-, 10-, and 17-year-old children; low-, middle-, and high-income families; Black, Hispanic, White, and Asian people; parents with Ph.D.s, parents with bachelor's degrees, and parents with no degrees; and families containing 1, 5, and 10 children. Furthermore, there is nothing in the research literature to suggest that home-school families are, as a group, outlandish with respect to the characteristics previously summarized. That is to say, they are part of mainstream America in many ways.

It has already been explained that the literature suggests home-school parents and families are not drastically different from most Americans. They must be different in some ways, however, since they are home schooling. Despite the apparently increasing pluralism of the home-schooling movement with respect to many variables, the vast majority seem to share at least one common belief—the education of children is primarily the responsibility and the right of parents. In addition, there is one trait that is usually implied and occasionally explicit in the literature: parents who home school their children are extremely interested in and concerned about the total education of their children.⁴² "And they are willing to be different, to take a socially unorthodox route to rearing the kind of children they want."⁴³

The median amount that families spend per child per year for home education is about \$450.



A Day in the Life of a Home-School Family

Although stereotypes and touted formulas abound, there is no one best system for home schooling. Advocates and practitioners alike maintain that this is one of the most important aspects of home-based education. The approach that is chosen by parents and students may be based upon a unique blend of their worldview, philosophy of education, the child's particular academic interests, strengths, and weaknesses, the nature of the local community, the laws of the family's state, the parents' traits and interests, and the family's special character. The claim that all children in America (or in any nation) need a common educational and social experience is not central to the thinking of home educators.

The variety of day-to-day pedagogy and activity within home-schooling homes is remarkable, researchers have found.⁴⁴ Some children may start the day with breakfast then are off to their desks in a "schoolroom" where they recite the Pledge of Allegiance and then promptly dig into a series of sequential workbooks. Children in other families begin the day by feeding the chickens and livestock, then prolonged conversation around the breakfast table, then a gradual shift into a minimally-planned mixture of reading novels, practicing phonics, and writing letters to grandparents.

There was a time when Van Galen's ideologies were associated more with structured and institutional-school practices while the pedagogues were associated more with unstructured and "unschooling" approaches.⁴⁵ The use of such stereotypes,

however, is now essentially fruitless. Many families have the "flavor of institutional school"⁴⁶ while many avoid almost all appearance of what goes on in public and private schools. For example, while "religious" parents were at one time associated more with school-like practices, an increasing

number of Christian speakers and writers are advocating "relaxed home schooling,"⁴⁷ a "lifestyle of learning,"⁴⁸ and a focus on "eternal and practical time"⁴⁹ rather than schooling *à la* conventional practice. As Dr. Lesley Taylor noted, some families are practicing home schooling in a way that keeps biblical truths firmly in place while giving less attention to "...all the criteria by which institutional schools and thus the wider culture measure what is truly of value in education."⁵⁰

The variety in the thinking and practice of home educators is no different, in some ways, than the variety found among theorists and teachers who are associated with institutional public and private schools. Many believe that the vast potential of home-based education is yet to be rediscovered.

In general, children who are taught by their parents score above national averages on standardized achievement tests.

Does It Work?

ACADEMICS

The public and researchers began asking 20 years ago: Does it work? Is it possible for parents, who are not professionally trained teachers, to successfully teach and guide their children's education? Dozens of studies have now been completed. Often such studies involve an analysis of standardized achievement test scores of home-educated students. It should be pointed out, therefore, that the national average on such tests is the 50th percentile for students in institutional schools. For example, if Johnny scores at the 50th percentile in mathematics, that means he did better than 50 percent of the general population of students taking that mathematics test. For another example, if Lucinda scores at the 82nd percentile in science, she performed better than 82 percent of the other students.

In general, children who are taught by their parents score above national averages on standardized achievement tests (Figure 3). Following are descriptions of several representative studies.

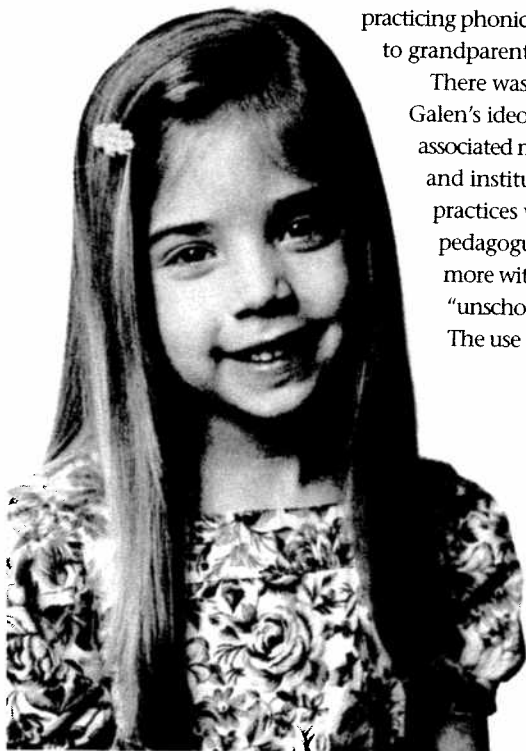
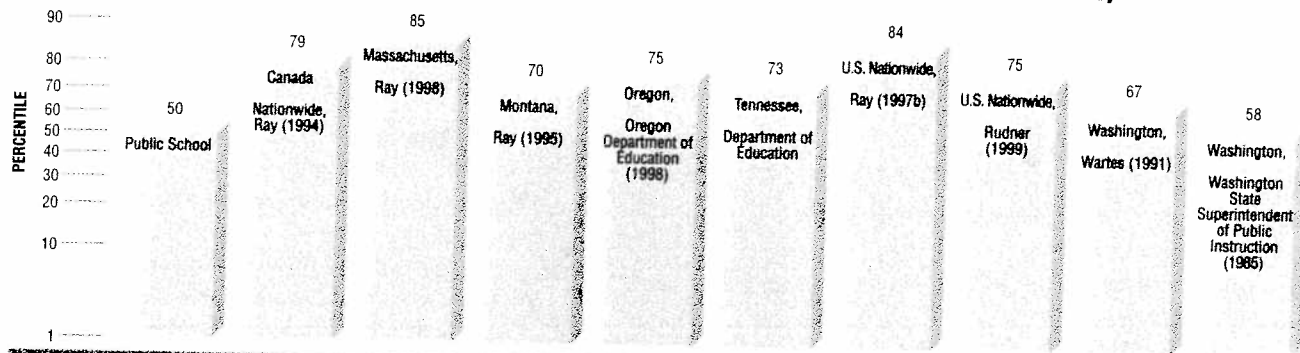


FIGURE 3
HOME SCHOOL AND PUBLIC SCHOOL ACADEMIC ACHIEVEMENT (GRADES K-12, AVERAGE SCORES)



Jon Wartes, a public high school counselor, has studied the *Stanford Achievement Test* scores of hundreds of home-educated students, grades K-12, in Washington State for several years. He has found that these students consistently score above the national average in various academic areas (e.g., reading, language, math, science), with the median score at about the 67th percentile on national norms.⁵¹

A study in California by Dr. Mona Delahooke compared the intelligence and achievement of home-school and private-school nine-year-olds. She found no significant differences between the two groups in terms of intelligence and achievement test scores.⁵²

Students in Alaska's Centralized Correspondence Study (CCS), a state-managed form of home education, have consistently scored significantly higher than conventional-school students nationwide on the *California Achievement Test* in math, reading, language, and science.⁵³ These students also score higher on achievement tests than do conventional-school Alaskans.⁵⁴

State departments of education, such as those in Oregon and Tennessee, often report that the home-educated students (for whom they have scores) in their states are scoring well above average on standardized achievement tests.⁵⁵

The most in-depth nationwide study to date examined, among other things, the achievement of home-educated students.⁵⁶ Dr. Brian Ray's 1997 study included a variety of families from all over the United States. Data were collected on 1,657 families and their 5,402 children. These students scored, on the average, at high percentiles on standardized academic achievement tests: (a) total reading, 87th, (b) total language, 80th, (c) total math, 82nd, (d) total listening,

85th, (e) science, 84th, (f) social studies, 85th, (g) study skills, 81st, (h) basic battery (i.e., reading, language, and mathematics combined), 85th, and (i) complete battery (all subject areas in which student was tested), 87th. Notably, the home educated did quite well in areas that skeptics often consider to be too difficult for the untrained to teach (e.g., math and science) and areas in which skeptics think home educators would not be interested (e.g., other cultures, social studies).

Dr. Ray's 1990 nationwide study, the largest of its kind at that time, involved a more limited population of home schoolers. The findings on the approximately 1,500 families and 4,600 children were, however, similar to those of his 1997 nationwide study. The home-educated students averaged at or above the 80th percentile on standardized achievement tests in all subject areas.⁵⁷

Ray's nationwide 1990 and 1997 findings may be compared to the achievement test data reported by the Home School Legal Defense Association (HSLDA) in 1994.⁵⁸ *The Iowa Test of Basic Skills (ITBS)* scores, for several subjects, of 16,311 home-educated students in grades K through 12 were obtained from a national testing service. The basic battery scores, by grade level, ranged from a low of the 62nd percentile to a high of the 87th percentile, with a majority of the percentile scores in the 70s. Perhaps the volunteer nature of participation in Ray's nationwide studies tended to include students whose achievement scores were slightly higher than those in the general home-education population which this HSLDA report might have represented.



More recently, Dr. Larry Rudner examined the *ITBS* scores of about 21,000 home-educated students, nationwide. He found that the students' average percentiles were in the mid-60s to mid-70s percentiles. At each grade level, the percentile corresponding to the median scaled score was typically in the 70th to 80th percentile range.⁵⁹

A number of other studies have resulted in findings similar to those just mentioned: home-educated students in Indiana averaged at the 86th percentile on the basic battery;⁶⁰ Massachusetts students were at the 85th percentile on basic battery;⁶¹ Montana students were at the 72nd and 70th percentile on basic battery;⁶² North Dakota students taught at home had averages at about the 85th percentile;⁶³ those taught by their parents in Oklahoma scored, on average, at the 88th percentile in the combination of their reading, language, and mathematics performance;⁶⁴ the home educated in Pennsylvania scored from the 60th to 74th percentiles.⁶⁵

Not all studies, however, show home-educated students scoring above average. Dr. Jennie Rakestraw found 1st and 4th grade home-education students to be scoring below the national average in mathematics, while the home educated in grades 2, 3, 5, & 6 were above average, and average reading scores for the 1st through 6th grade students were at the 54th through 97th percentile.⁶⁶ The Washington State Superintendent of Public Instruction also found scores that were not particularly high, with the home educated

scoring at the 62nd percentile in reading, 53rd percentile in mathematics, and the 56th percentile in language.⁶⁷ The New Mexico State Department of Education once reported that their records showed that the academic achievement of the home educated was generally above average, but not as high as reported in most research studies.⁶⁸

Overall, the research clearly indicates that home-school students perform at least as well as their conventional-school counterparts in the subject areas considered to be the "basics" of American education and the essential tools for success in college and in American society.

ARE THE COLLEGE-BOUND PREPARED?

ACT and *SAT* tests are the best-known test predictors of success in college. The *ACT* publisher reported the scores of 1,926 home-school students from the high school graduating class of 1997. The home schooled scored, on average, in English at 23.0 compared to 20.3 for the national average; in math, 20.2 versus 20.6; in reading, 24.4 compared to 21.3; in science reasoning, 22.0 versus 21.1; and the home-schooled composite average was 22.5 compared to the national average of 21.0. According to statistical rules of thumb, these home-school youth who were interested in college outperformed the national average in English, reading, and on the overall composite of the *ACT*, but there was

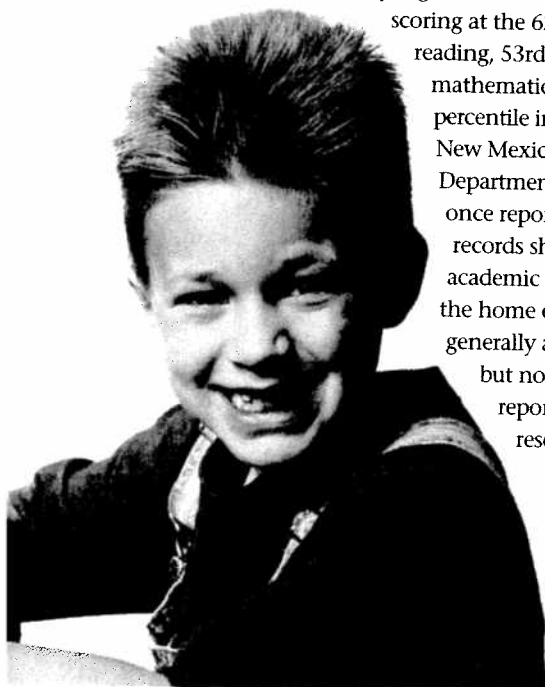
little to no difference in terms of reasoning skills.⁶⁹ The *SAT* scores of 75 home-school students in Pennsylvania were reported for the 1995-1996 school year.

"The middle PA Homeschooler scored 600 (80th percentile) in verbal and 550 (65th percentile) in math."⁷⁰ Increased research will soon reveal more on this subject.

ARE THEY BECOMING TECHNOLOGICALLY LITERATE?

Some research has implicitly addressed the computer literacy of the home educated. Dr. Gregory Marchant explored home-education families' usage of on-line computer services. He concluded that these parents were "...armed to the teeth with educational materials and technology. They all have computers and use them."⁷¹ Eighty-six percent of the families in a recent nationwide study had a computer in their home and computers were used for the education of children in 84% of these families.⁷² By comparison, only about 34% of all United States families owned computers at the time.⁷³ Limited research and news reports suggest that technology, including computers, the Internet, and distance-education courses, are commonly used by home schoolers and available technology will significantly increase the numbers of families home schooling in America.⁷⁴

*Home-school
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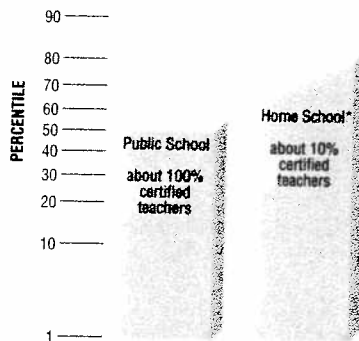


CORRELATIONS BETWEEN ACADEMIC ACHIEVEMENT AND OTHER VARIABLES

A number of researchers have explored whether the academic achievement of the home educated is related to selected variables that might be of particular interest to policy makers and others. One of these factors of interest is whether the parents are government-certified teachers (see Figure 4). Studies in Alabama, Oklahoma, Pennsylvania, Texas, nationwide twice, and nationwide in Canada all revealed that there was no significant relationship between student achievement and the teacher certification status of their parents.⁷⁵ Dr. Steven Duvall and his colleagues, on two occasions, have found that even special needs children were successfully home educated by parents who were not certified teachers.⁷⁶ One study in Montana found that whether the father was a certified teacher was not significant while the mother's certification status was significant.⁷⁷ Dr. Richard Medlin, on the other hand, found a weak relationship between achievement and whether the mother was a certified teacher.⁷⁸

**FIGURE 4
IS TEACHER CERTIFICATION NECESSARY FOR HIGHER ACHIEVEMENT?**

Average scores on standardized achievement tests



*Home-school students of both non-certified and certified parents score in the 65th to 80th percentile range.

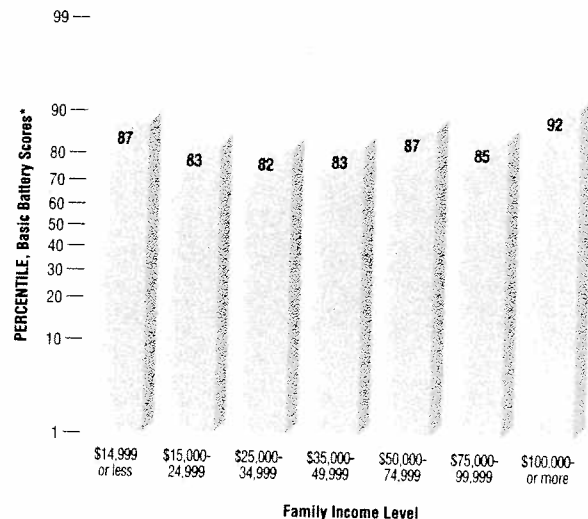
The educational attainment of parents is another factor that is of interest to policy makers and some researchers. In four separate studies, Dr. Havens, Dr. Rakestraw, and Dr. Ray found no relationship between parents' educational attainment and the academic achievement scores of their home-educated children in Texas, Alabama, Oklahoma, and nationwide.⁷⁹ On the other hand, Dr. Ray found weak to moderate relationships between parents' educational attainment and their

children's achievement scores in his North Dakota and earlier nationwide studies.⁸⁰ Likewise, Jon Wartes found weak to moderate relationships in his Washington research.⁸¹ Even with these correlations, which do not necessarily indicate a causal relationship, the home educated still tended to score above average on achievement tests.

The relationship between family income and student achievement has been of interest to policy makers and researchers. "Within the general school population,...The children of parents who earn more money tend to do better than those where the parents earn less."⁸² There was no significant relationship between family income and student achievement in home-school studies done in North Dakota, in most comparisons in an Oklahoma study, in Washington, and in one nationwide study (see Figure 5).⁸³ On the other hand, Jon Wartes and Dr. Brian Ray found weak relationships between income and test scores in Washington and in a nationwide study.⁸⁴ Even with these weak correlations, which do not necessarily indicate a causal relationship, the home educated tended to score above average.



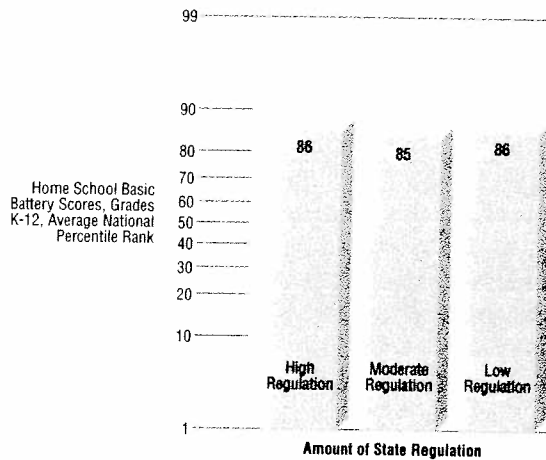
**FIGURE 5
IS FAMILY INCOME A PREDICTOR OF ACADEMIC ACHIEVEMENT FOR HOME SCHOOLERS?**



*Based on data from Ray, 1997b.

**FIGURE 6
IS GOVERNMENT REGULATION NECESSARY FOR
HIGH ACHIEVEMENT?**

STATE REGULATION: No impact on home-school achievement*



BREAKDOWN OF STATES BY REGULATORY POLICY

LOW REGULATION

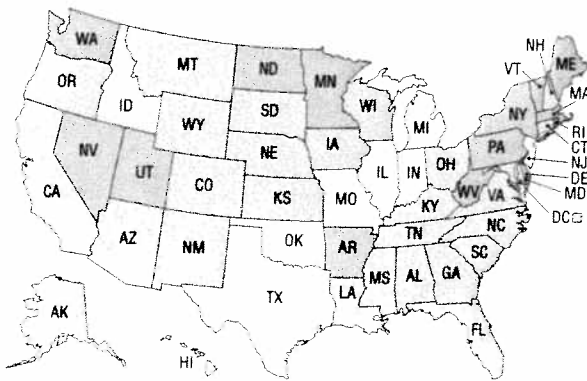
No state requirement for parents to initiate any contact with the state.

MODERATE REGULATION

State requires parents to send notification, test scores, and/or professional evaluation of student progress.

HIGH REGULATION

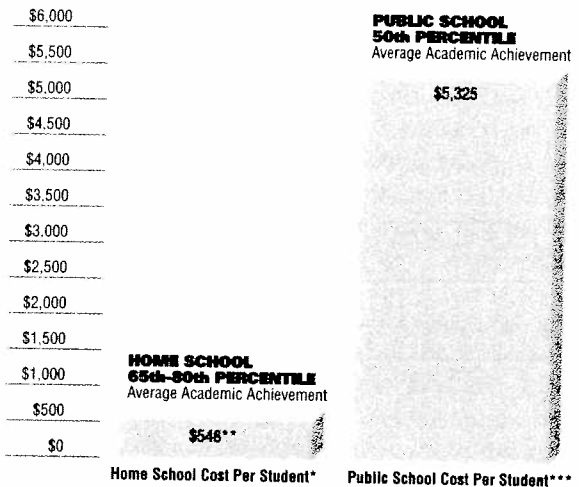
State requires parents to send notification or achievement test scores and/or professional evaluation, plus other requirements (e.g. curriculum approval by the state, teacher qualifications of parents, or home visits by state officials).



*Based on data from Ray, 1997b.

**FIGURE 7
DOES SPENDING CORRELATE WITH ACHIEVEMENT?**

Average Annual Cost per Student*



* All cost-per-student amounts in this figure exclude capital costs.

** Based on data from Ray, 1997b.

*** United States Department of Education, National Center for Education Statistics (1996), Statistics in brief, June 1996; Revenues and expenditures for public elementary and secondary education: School year 1993-1994. [From: Common Core of data: National public education financial survey.] Washington DC: U.S. Department of Education.

**FIGURE 8
RELATIONSHIP BETWEEN VARIOUS INDEPENDENT
VARIABLES AND ACADEMIC ACHIEVEMENT TEST
SCORES OF HOME SCHOOL STUDENTS.**

This is a summary of many studies.

Variable of Interest	Related to Academic Achievement in Home Schooling?
Money Spent on Education	No Relationship
Family Income	No Relationship Most Studies; a few studies found weak positive
Degree of State Regulation	No Relationship
Legal Status of Family	Typically No; one study found underground performed better
Father's Formal Education Level	Mixed Results
Mother's Formal Education Level	Mixed Results
Father Been Certified Teacher	Typically No Relationship; few studies found weak positive
Mother Been Certified Teacher	Typically No Relationship; few studies found weak positive
Gender of Student	No Relationship
Years Student Home Educated	Typically No Relationship; few studies slight positive
Time Spent in Formal Instruction	No Relationship
Age Began Formal Instruction	No Relationship
Use of Libraries	Typically No Relationship; occasional slight positive
Use of Computer	Typically No Relationship; occasional slight positive
Who Administered Test to Student	Typically No Relationship; occasional slight

Many policy makers are interested in whether home schoolers should be regulated more heavily by the state. Research to date has shown little to no relationship between degree of regulation by the state and students' academic achievement (see Figure 6).⁸⁵

Sociologists and policy makers also wonder whether the money spent on home education is related to student achievement. Research findings suggest there is no relationship (see Figure 7).⁸⁶

Various researchers have studied many factors and their relationships to the academic achievement of the home educated. Figure 8 provides a summary of these relationships. While examining Figure 8, it should be kept in mind that a statistical relationship does not necessarily establish cause and effect.

The hidden curriculum affects the psychological and spiritual development of a child.

Of course, the questioner presupposes a number of unspoken assumptions. For example, she assumes that a conventional-school classroom is the best setting for learning how to get along with others, that a child in such a classroom will learn best how to stand on his own, that an age-segregated situation with a government-certified teacher is best for learning how to function and think in society, and that the conventional classroom setting is the healthiest setting for the psychological development of a child who is trying to become a mature adult in a democratic republic.

"What about socialization?" is a perennial question asked of home educators and their children. Several researchers have explored the self-perceptions, which are related to socialization, of the home schooled. Dr. John Wesley Taylor focused on self-concept as one significant aspect of the psychological development of children. His nationwide study revealed that the self-concept of home-school students was significantly higher than that of public-school students for the global scale and all six subscales of the *Piers-Harris Children's Self-Concept Scale (PHCSCS)*.⁸⁹

Dr. Norma Hedin also examined the self-concept of home-educated children using the *PHCSCS*. She only studied children from Baptist churches in Texas. She compared those who were educated in public, Christian, and home schools and found no difference in self-concept between these three groups. The self-concept of all of them as a group, however, was higher than that of the public-school population.⁹⁰

But What About Socialization?

It is well known among educators, and many others, that there is a "hidden curriculum" in the schools.⁸⁷ It has more to do with values and acculturation than with the three R's. It has to do with how people behave and what understanding of reality and society guides their thinking. The hidden curriculum affects the psychological and spiritual development of a child. While some have tried to argue that the public-school environment and curriculum are



value- and religion-neutral, most scholars and educators have come to recognize this is not true. Dr. Warren Nord of the department of philosophy of the University of North Carolina concluded, "Indeed, I will argue that

at least in its textbooks and formal curriculum students are *indoctrinated* into the modern (secular) worldview and against religion."⁸⁸ All of this is part and parcel of socialization.

When someone asks of home education, "What about socialization?," he or she usually means, "How will these children learn to get along with others when they are not in large, age-segregated groups of their peers the majority of the day?" He might mean, "How will this home-educated child learn to accept the American way of thinking and living?"



Dr. Steven Kelley also used the *PHSCS* and concluded: "The self-concept of home schooling children in suburban Los Angeles was significantly higher...than the norms of conventionally schooled children. ...A low anxiety level could be a contributing factor, ... More contact with significant others, parental love, support, and involvement, peer independence, and a sense of responsibility and self-worth may be other contributing factors."⁹¹

Self-perceptions also relate to academic achievement. Dr. Richard Medlin examined the predictors of home schoolers' achievement and concluded that their academic self-concept, at the 72nd percentile, was above the national average and was positively related to achievement.⁹²

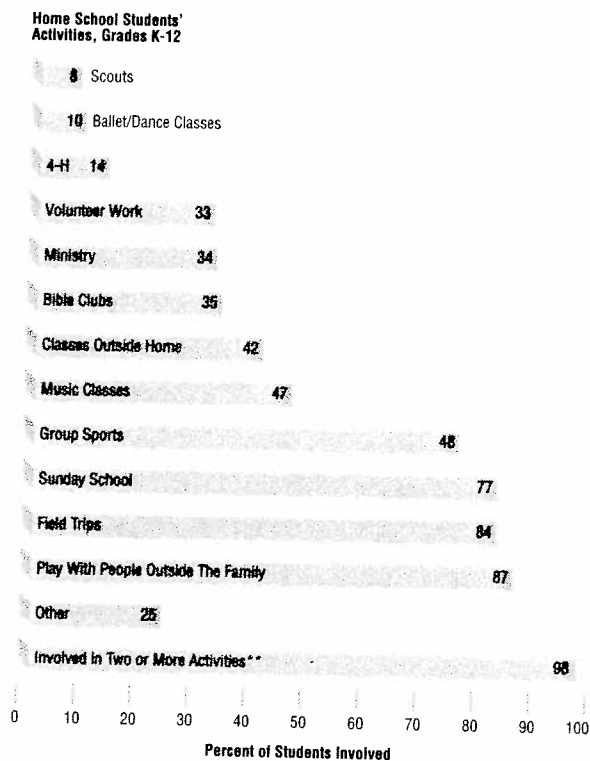
Findings of Vicki Tillman "...show that these home schoolers are not isolated but active, contributing members of society, even in childhood. Ninety-eight percent are involved in weekly church meetings and other activities which require interfacing with various ages and settings. ...As rated by the *SEI* [*Self-Esteem Index*], these home schoolers have above-average self-esteem."⁹³

Dr. Mona Delahooke studied the social and emotional development of nine-year-olds from private schools compared to those who were home schooled. The only significant difference was that "...private school subjects appeared to be more influenced by or concerned with peers than the home-educated group."⁹⁴ It appeared that home-educated children perceived their parents as primary authority figures more often than did the private-school children.

Thomas Smedley used the *Vineland Adaptive Behavior Scales* to evaluate the communication skills, socialization, and daily living skills of demographically matched public-schooled and home-educated students. The data revealed that "...the home-educated children in this sample were significantly better socialized and more mature than those in public school.

The immediate implication is that home school families are providing adequately for socialization needs."⁹⁵

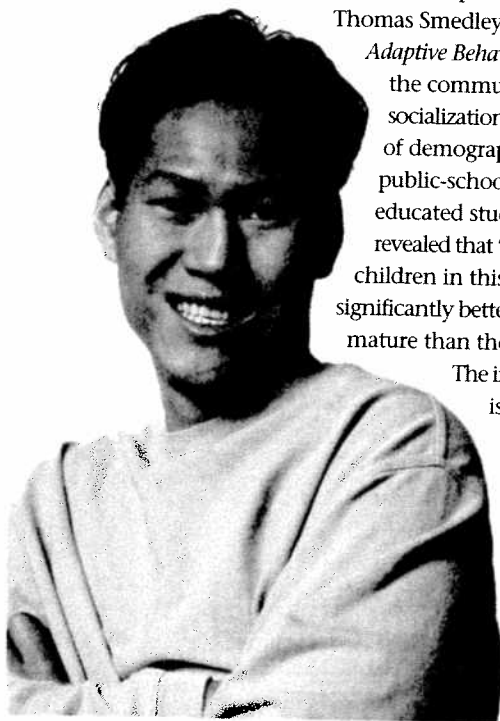
FIGURE 9
WHAT ABOUT SOCIALIZATION?
Home Schoolers' Activities and Community Involvement*



* Based on data from Ray, 1997b.

** Participation in two or more of the 12 activities does not include "other activities." See Table 8 of Ray 1997b.

The research of Dr. Larry Shyers has received the most media attention regarding the socialization of the home educated. He compared those who were solely home educated to the solely public-schooled students in terms of their social adjustment. Both groups of children received positive self-concept scores. The only significant differences were in their actual observed behaviors—institutionally schooled students received significantly higher problem behavior scores than did their home-educated agemates. The conventionally schooled tended to be considerably more aggressive, loud, and competitive than were the home educated. Dr. Shyers noted that his findings draw into question the assumption made by many people that traditionally educated children are more socially well-adjusted than those who are home educated.⁹⁶



As far as researchers have found, the home educated are doing well in terms of social, psychological, and emotional development. Perhaps the fact that most of these children have siblings and are engaged in a variety of social activities makes the research findings on socialization not surprising.

Researchers in several other studies have examined various aspects of the social activities and emotional characteristics of home-school children. Their research has established that these children are actively involved in myriad activities outside the home with peers, children of different ages, and adults (see Figure 9). The data from this research suggest that home schoolers are not being socially isolated nor are they emotionally maladjusted.⁹⁷

On the other hand, Dr. Steven Smith and his colleagues discovered some negative findings regarding the home educated. They studied 6- to 10-year-old home-school and conventional-school children in Michigan. The researchers found that both groups were lower in motor performance than children nationwide; the home educated were somewhat lower in motor performance (e.g., galloping, running, and kicking objects) scores than the children in conventional schools. Also, the home educated were significantly lower in some of the self-perception domains tested when compared to the conventional-school group. The authors pointed out, however, the fact that their findings regarding perceived competence seemed to contradict findings by a number of other researchers.⁹⁸

Sonia Gustafson studied families drawn from the directory of one nationally circulated home-school magazine. One fifth of the parents said there was some form of social isolation involved, but many of these parents explained that the problem was not isolation itself—the problem was the challenge of the effort parents needed to expend to provide an acceptable type and degree of social contact. It should be noted, further, that the parents did not say that this isolation resulted in children with poor social skills.⁹⁹



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What About Special-Needs and Talented-and-Gifted Children?

Some people would concede, based on research findings, that home schooling works for “normal” or “near-typical” children but they maintain that it cannot work for those with special needs or those who are talented and gifted. Is there any research on this? So far, very little; but the little there is speaks well of home schooling’s effects.

First, some work has been done on children with special needs, those who have mental or physical delays or disabilities. Dr. Duvall and his colleagues studied elementary and junior high students with learning disabilities in both home schools and public-school special education programs “...to determine whether parents, who were not certified as professional educators, provided students with instructional environments that facilitated the acquisition of basic skills.”¹⁰⁰

Home-school students were involved in academic engaged time (AET) 59% of the time versus 22% of the time for public-school students. The “... home school students made more [academic achievement] gains in comparisons involving reading, the one involving math, and three of four in written language. The remaining written language comparison...involved equivalent home school and public school gains.”¹⁰¹ “Generally, the measures of classroom ecology and achievement showed that home schools, when compared to special education programs, provided equal if not more advantageous instructional environments for children with learning disabilities.”¹⁰²

Another study involved home-school and public-school elementary and junior high students with Attention-Deficit/Hyperactivity Disorder (ADHD).¹⁰³ The general purpose of the study was to determine whether parents provided students with instructional environments that facilitated the acquisition of basic skills. “...Homeschool students were academically engaged about 1-1/2 [1.5] times as often as public school students. Furthermore, homeschool students made more progress in reading and math, and about equal gains in written language. It was concluded that parents could create powerful instructional environments for their children at home.”¹⁰⁴

While researchers use conservative terms to state the success that parents have in home schooling their learning disabled children, a rapidly increasing number of families with special needs children are eagerly choosing home schooling.¹⁰⁵

Another group of students, the talented and gifted (TAG), also appear to be a part of the swelling ranks of the home-education community. In 1984 Katheryn Kearney, now an instructor at Iowa State University, wrote, "No less a gifted inventor than Thomas Edison was taught at home by his mother, after she removed him from school when his teacher said he was 'addled.'" ¹⁰⁶ Kearney interviewed two families with gifted children to explore what they did and why, perhaps, they were successful. She found: "Both families designed an extensive, individualized curriculum for their children, taking into account special abilities and interests."¹⁰⁷

Dr. Jacque Ensign studied both special needs and gifted students who were home educated and concluded:

*"The hallmarks of the educational philosophies and pedagogies of the homeschoolers in this study are 1) focus on the whole child rather than primarily on the child's disability or extreme ability, 2) individualized attention, and 3) care, patience, and respect for the child to lead the teacher in both the timing and the content of what the child is ready to be taught. ...The educational outcomes for these homeschooled special education students are self-confident students who have developed academic skills at very uneven rates but who have usually achieved academic excellence by the end of high school."*¹⁰⁸



In addition to this limited research on TAG students, numerous writers in the field have listed the names of famous gifted people who were home schooled, and have suggested that home schooling is a good option for many gifted children.¹⁰⁹

How Will They Do in the Real World?

Although the research evidence supports the claim that home schooling has positive effects on children and students, serious questions still remain. One question is framed like this: These children may do well in the three R's and in basic social skills while they are young—and maybe into their teen years—but how are they going to do in the "real world" as adults?

Dr. Linda Montgomery was one of the first to look to the future and adulthood of the home educated. She did this by investigating the extent to which home-school students were experiencing conditions which foster leadership in children and adolescents. Her findings on 10- to 21-year-olds suggested that the home educated are certainly not isolated from social and group activities with other youth and adults. They were quite involved in church youth group and other church activities, jobs, sports, summer camps, and music lessons and recitals. She concluded that it appears home schooling

"...nurture[s] leadership at least as well as does the conventional system."¹¹⁰

Susannah Sheffer's book on her study of home-schooled adolescent girls is replete with these girls' own words and interpretive comments by the researcher. Sheffer begins her report by citing the work of Dr. Carol Gilligan and her colleagues in the Harvard Project on Women's Psychology and Girls' Development who, lamenting, "...have written about girls' 'loss of voice' and increasing distrust of their own perceptions."¹¹¹ Sheffer suggests that the great difference in structure and function—the way things work, the relationships people have, expected behaviors, and the roles people play—between home schooling and conventional schooling may explain why she found so many of these home-educated adolescents to have not lost their personal voice and personal sense of identity.

Meredith, a 14-year-old, said, "I was worried that I would become a typical teenager if I went to school" and "I think some people would have seen [school] as my opportunity to 'be like everybody else.' But I didn't want to be like everybody else."¹¹² Sheffer concludes, "Throughout this book the homeschooled girls I've interviewed have echoed these statements. They have talked about trusting themselves, pursuing their own goals, maintaining friendships even

"No less a gifted inventor than Thomas Edison was taught at home by his mother, after she removed him from school when his teacher said he was 'addled.'"

when their friends differ from them or disagree with them."¹¹³ Finally, these home-educated girls maintain their self-confidence as they pass into womanhood.

Sheffer's findings regarding adolescent girls might explain some of the successes that other researchers have found regarding young adults who were home schooled. For example, Dr. Rhonda Galloway and Dr. Joe Sutton categorized college students as either home, public, or private schooled and examined their aptitude for and achievement in college English.¹¹⁴ They found, "...the home schooled students in this study demonstrate similar academic preparedness for college and similar academic achievement in college as students who had attended conventional schools."¹¹⁵

Dr. Paulo Oliveira and his colleagues found: "Although the [college] students who were educated in home schools had a slightly higher overall mean critical thinking score... than that of students who were from public schools, Christian schools, and ACE schools, the [statistical] ... test revealed that there were no significant differences among the groups on this critical thinking score..."¹¹⁶

Researchers in another study used academic, cognitive, spiritual, affective-social, and psychomotor criteria for measuring success at a university. Among other things, they found that the home schooled held significantly more positions of appointed and spiritual leadership and had more semesters of leadership service than did the private-school group, although they were not significantly different from the public-school group.¹¹⁷

Although some college and university personnel show animosity or hostility toward the home-schooling process, it appears that most are now interested in welcoming the home educated.¹¹⁸ A fast-growing list of now over 750 colleges and universities admit the home educated.¹¹⁹ Dr. Irene Prue's nationwide survey of college admissions personnel revealed, "Home schoolers are academically, emotionally, and socially prepared to succeed in college..."¹²⁰ In addition, several colleges think so well of the home educated that they have been actively recruiting them for several years. Another survey of college admissions officers found the Dartmouth College admissions officer saying, "The applications [from home schoolers] I've come across are outstanding. Home schoolers have a distinct advantage because of the individualized instruction they have received."¹²¹

Dr. J. Gary Knowles was the first to focus on older adults who were home educated. He collected extensive data from a group who were home educated an average of about 6

years before they were 17 years old. He found that they tended to be involved in occupations that are entrepreneurial and professional, and that they were fiercely independent and strongly emphasized the importance of family. Furthermore, they were glad they had been home educated, would recommend it to others, and had no grossly negative perceptions of living in a pluralistic society.¹²²

Along a different vein, Patricia Lines, of the United States Department of Education, asked whether home-school parents and their children are withdrawing from the larger public debate about education and, more generally, from social discourse that is an integral part of a liberty-loving republic. In a sense, she addressed whether these children and youth are being prepared to be a significant part of society. Lines concluded:

*"Although they [home school parents] have turned their backs on a wide-spread and hallowed practice of sending children to a school located in a particular building, adhering to a particular schedule and program, they have not turned their backs on the broader social contract as understood at the time of the Founding [of the United States]. ...Like the Antifederalists, these homeschoolers are asserting their historic individual rights so that they may form more meaningful bonds with family and community. In doing so, they are not abdicating from the American agreement. To the contrary, they are affirming it."*¹²³

Similarly, Charles Clark's report confirmed the involvement of home educators, who are models for their children, in vigorous legislative lobbying.¹²⁴ Others have also discussed how home educators and their children receive an alternative education and stay involved in the larger political and social processes of America.¹²⁵ Although limited in terms of the number and the scope of studies, research to date suggests that the home educated are doing well in adulthood.



The Generational Effect

Not only does home schooling affect youth who are becoming adults, the practice also significantly affects the older generation, their parents. It is well known that having children forces adults, if they have not already done so, to clarify their beliefs about many things, including education. Considering and practicing home schooling causes parents to think about their own educational experiences, evaluate available alternatives, change their relationships with their children, critically analyze societal norms, and learn anew or improve in academic subjects. Fundamentally, they must become lifelong learners if they are not already.¹²⁶

Limitations of the Research

Does this research present an accurate picture of its subject, home-based education and its results? First, with respect to home schooling, researchers find it challenging to obtain samples that are representative of all home schoolers in the populations of interest. This uncertainty should be kept in mind while evaluating any social science study about human populations.

Second, one of the main problems with drawing firm conclusions from the research described above on the specific topic of learner outcomes is that it is not experimental.¹²⁷ That is, no

one randomly assigns children to three types of education (i.e., public, private, and home), lets them live for ten years in those environments, then measures and compares their academic achievement, social and emotional maturity, and motor skills, all in order to determine whether the type of education *caused* differences in the measured factors. The reality is that researchers have to deal with intact groups and research situations that entail

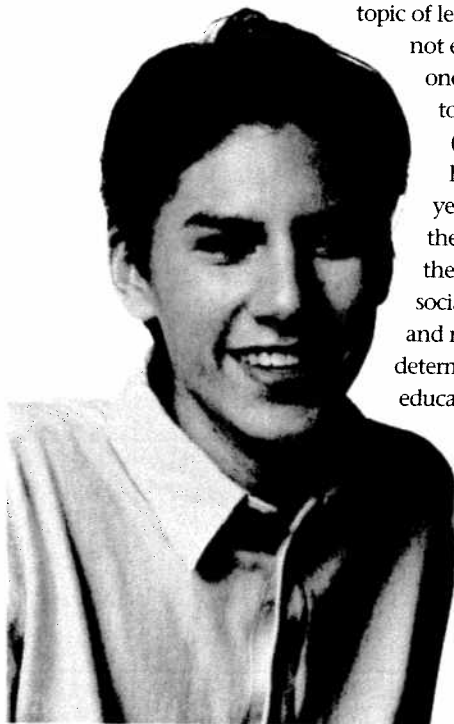
complex and confusing factors. This is a challenge in almost all social science research, not just that on home schooling. More causal-comparative studies are needed that simultaneously and carefully control for various background variables in order to more clearly determine whether home schooling causes positive, or negative, effects.

Another limitation of the research to date is that not much of it has investigated the effect of home education on other aspects that are important to home educators.¹²⁸ Sparse research has been done to address such long-term outcomes as close family relationships and mature, home-educated adults who hold true to certain values and ways of living.¹²⁹ Research along these lines will add greater richness to the current body of research on home education.

In Conclusion

It is clear that home- and family-based education has firmly grabbed hold of Americans' attention during the last two decades of the 20th century. Researchers, trend watchers, and reporters for major news magazines all indicate that the movement will continue to grow in numbers and cultural influence well into the 21st century. Dr. James Carper of the University of South Carolina wrote in 1992, "How it [home education] relates to changing family roles and structures and the way we educate children now and in the future begs the attention of scholars of all stripes."¹³⁰ He was correct, and scholars have descended upon the phenomenon. Their research indicates that the home educated are doing favorably in terms of academic achievement, participation in nonacademic activities, measures of social, emotional, and psychological development, and success in college and adulthood.

There have been times when many, even advocates of home schooling, have cautiously stated, "Home schooling is not for everyone." Only the future will tell, however, to what extent home schooling will appeal to and serve the briskly expanding variety of social, cultural, ethnic, and educational groups who have already gained a hearty interest in it. The evidence suggests that these families and children will experience the same successes had by home schoolers of the 1980s and 1990s. Therefore, the growth in the movement's ranks and its impact on society may be peculiar and remarkable through the threshold of the new millennium.



ENDNOTES

(See the reference list for the complete bibliographic information related to these notes.)

- 1 Caldwell, 1999; Clark, 1994; Hadeed, 1991; Kantrowitz & Wingert, 1998; Lines, 1994; Toch, 1991.
- 2 Multiple references will be provided later to support this statment and other conclusions made in this publication.
- 3 See, e.g.: Clark, 1994 and Kantrowitz & Wingert, 1998.
- 4 Orr, 1929, 1983, p. 901; Martin Luther, in Plass, 1959, p. 449.
- 5 Richman, 1994.
- 6 See, e.g.: Gatto, 1998; Richman, 1994; Smith, 1990; Spring, 1990, p. 31.
- 7 Buehrer, 1995; Clinton, 1996; Duffy, 1995; Martin, 1992; National Education Association, 1990, resolutions promoting tax-funded pre-kindergarten programs, health care services, social and psychological services, food services, and counseling regarding sexual/gender orientation within government-run schools.
- 8 Lines, 1998; Ray, 1998b.
- 9 See, e.g.: Farris, 1998; Klicka, 1997a; Meighan, 1984, 1997; Ray, 1994; Smith, 1993.
- 10 Gordon & Gordon, 1990.
- 11 Carper, 1992, p. 254.
- 12 Tyack, 1974, p. 16.
- 13 Tyack, 1974, p. 14, 15.
- 14 Lines, 1991; Carper, 1992.
- 15 Knowles, Marlow, & Muchmore, 1992.
- 16 Knowles, Marlow, & Muchmore, 1992, p. 204.
- 17 Shepherd, 1986b, p. 39, 40.
- 18 Kirschner, 1991.
- 19 Knowles, Marlow, & Muchmore, 1992, p. 227.
- 20 Kirschner, 1991, p. 156.
- 21 Leo, 1992, p. 24.
- 22 Mayberry, 1988, p. 12, 13; see also, Caldwell, 1999.
- 23 Caldwell, 1999.
- 24 Home School Legal Defense Association, 1996; Romm, 1993.
- 25 United States Department of Education, National Center for Education Statistics, 1998b.
- 26 Lines, 1998; Ray, 1998; see graph.
- 27 United States Department of Education, 1998a.
- 28 United States Department of Education, 1998b.
- 29 Lines, 1998; Ray, 1998b.
- 30 Van Galen, 1986, 1988.
- 31 Breshears, 1996; Mahan & Ware, 1987; Mayberry, Knowles, Ray, & Marlow, 1995, p. 60, 63; Ray, 1997a; Romm, 1993; Sheffer, 1995, p. 137.
- 32 Resetar, 1990; Sheffer, 1995.
- 33 Bolick, 1987, p. 84.
- 34 Home School Legal Defense Association, 1996; Lines, 1987; Mayberry, Knowles, Ray, & Marlow, 1995; Romm, 1993; Shepherd, 1986a, 1986b; Van Galen, 1986.
- 35 This and the other summary statements in this report are based mainly on research. The author has used his understanding of the research findings, research methodology, and the studies' strengths and limitations to arrive at these summaries. Multiple references will be provided at the end of this list of generalizations and summary statements.
- 36 The following studies are among those used for making the preceding several summary statements: Breshears, 1996; Gladin, 1987; Gustafson, 1988; Gustavsen, 1980; Howell, 1989; Kilgore, 1987; Kink, 1983; Knowles, 1987, 1988, 1991; Knowles, Mayberry, & Ray, 1991 and unpublished data from the same study; Linden, 1983; Mahan & Ware, 1987; Mayberry, 1988, 1991; Mayberry, Knowles, Ray, & Marlow, 1995; McGraw, 1989; Pitman, 1986; Rakestraw, 1988; Ray 1989a, 1989b, 1990a, 1990b, 1991, 1992, 1995, 1997a, 1997b, 1998a, 1998b; Resetar, 1990, 1991; Reynolds, 1985; Rose, 1985; Schemmer, 1985; Van Galen, 1987; Wartes, 1987a, 1990a; White 1987; Williams, 1990.
- 37 United States Bureau of the Census, 1994a, p. 66.
- 38 United States Bureau of the Census, 1996b.
- 39 United States Bureau of the Census, 1996a.
- 40 United States Bureau of the Census, 1996a.
- 41 United States Department of Education, National Center for Education Statistics, 1996.
- 42 Benson, 1981; Gustafson, 1987; Gustavsen, 1980; Knowles, 1988; Schemmer, 1985; Taylor, 1986b.
- 43 Divoky, 1983, p. 397.
- 44 Harris, 1995; Mayberry, Knowles, Ray, & Marlow, 1995; Ray 1997b; Sheffer, 1995; Taylor, 1992; Wartes, 1988a.
- 45 Van Galen, 1987.
- 46 Taylor, 1992.
- 47 Hood, 1998.
- 48 Howshall, 1998.
- 49 Davis, 1998.
- 50 Taylor, 1992, p. 11.
- 51 Wartes, 1987a, 1988b, 1989, 1990b, 1991.
- 52 Delahooke, 1986.
- 53 Alaska Department of Education, 1984, 1985, 1986; Falle, 1986.
- 54 Alaska Department of Education, 1985, 1986; Falle, 1986.
- 55 Oregon Department of Education, 1990, 1998; Tennessee Department of Education, 1988.
- 56 Ray, 1997b.
- 57 Ray, 1990b.
- 58 HSLDA, 1994-1995.
- 59 Rudner, 1999.
- 60 Ray, 1997a.
- 61 Ray 1998a.
- 62 Ray, 1990a, 1995.
- 63 Ray, 1991.
- 64 Ray, 1992.
- 65 Richman, Girten, & Snyder, 1990; See further: Butler, 1994; Frost, 1987; Havens, 1991.
- 66 Rakestraw, 1987, 1988.
- 67 Washington State Superintendent of Public Instruction, 1985.
- 68 New Mexico State Department of Education, 1998.
- 69 ACT, 1997.
- 70 Pennsylvania Homeschoolers, 1996, p. 1.
- 71 Marchant, 1993, p. 8.
- 72 Ray 1997b.
- 73 United States Department of Education, 1996.
- 74 Yamall, 1998.
- 75 Rakestraw, 1988; Havens, 1991; Ray, 1990b, 1992, 1994, 1997b.
- 76 Duvall, Ward, Delquadri, & Greenwood, 1997; Duvall, 1999.
- 77 Ray, 1995.
- 78 Medlin 1994.
- 79 Havens, 1991; Rakestraw, 1988; Ray, 1992, 1997b.
- 80 Ray, 1990b, 1991.
- 81 Wartes, 1990a.
- 82 Wartes, 1990a, p. 50; see also, Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966; Coleman & Hoffer, 1987, ch. 5; Snow, Barnes, Chandler, Goodman, & Hemphill, 1991; Toch, 1991; Toch, Viadero, Holland, Mezzacappa, McGraw, Koerner, Dickerson, Silver, & Perry, 1999.
- 83 Ray, 1991, 1992, 1997b; Russell, 1994.
- 84 Ray, 1990b; Wartes, 1990a.
- 85 Ray, 1990b, 1997b.
- 86 Ray, 1990b, 1997b, 1998a.
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- 127 Cizek & Ray, 1995; Ray, 1986; Wright, 1988.
- 128 Cizek, 1993; Ray, 1988.
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* Back issues of the journal *Home School Researcher*, which is often cited in the above reference list, and reports by Brian Ray are available from the National Home Education Research Institute, PO Box 13939, Salem, Oregon 97309 USA, (503) 364-1490, www.nheri.org.

RESOURCES ON HOME SCHOOLING

National Home Education Research Institute (NHERI)

PO Box 13939, 925 Cottage Street NE, Salem OR 97309, phone: (503) 364-1490, fax: (503) 364-2827, www.nheri.org, mail@nheri.org. Research, statistics, expert witness, general information, consultation, marketing data, *Home School Researcher* journal, serves nationwide and internationally.

Home School Legal Defense Association (HSLDA)

PO Box 3000, Purcellville VA 20134, (540) 338-5600, www.hsllda.org, mailroom@hsllda.org.

Legal support, *The Home School Court Report*.

The Teaching Home magazine

PO Box 20219, Portland OR 97294, (503) 253-9633, www.teachinghome.com, tth@teachinghome.com.

Practical Homeschooling magazine

PO Box 1190, Fenton MO 63026, (800) 346-6322, www.home-school.com.

STATE ORGANIZATIONS

Contact NHERI, *The Teaching Home*, or HSLDA to find state organizations.

ABOUT THE AUTHOR



Brian D. Ray, Ph.D., is president and founder of the National Home Education Research Institute (Salem, Oregon, U.S.A.), a

nonprofit research and educational organization dedicated to serving all educators and the public by conducting research on home-based education, maintaining a network of researchers, and educating the worldwide public about home- and family-based education. Dr. Ray has conducted numerous studies on home schooling, founded and serves as editor of the academic, refereed journal *Home School Researcher* (ISSN 1054-8033), speaks widely to the media, professional meetings, and home-school conferences, and provides expert testimony before many courts and legislatures.

Dr. Ray earned his Ph.D. in science education from Oregon State University (Corvallis, Oregon, U.S.A.), has served as a professor at the undergraduate and graduate levels at colleges and universities in the areas of research methodology, science, education, and statistics, has taught at the elementary and secondary levels in public and private schools, has published many articles, is author of *Strengths of Their Own—Home Schoolers Across America* and is co-author of *Home Schooling: Parents as Educators*. Dr. Ray is considered a leading expert on home education both in the United States and internationally.